Instrumental Description Form

*Instrument name:*

*Date:*

*Ref SAFIRE:*

This form must be filled by each person in charge of the instrument in prevision of instrument airborne integration in one of the SAFIRE aircraft. The aim is to know exactly the instruments characteristics to be installed in the aircraft. Information for certification, codes for data acquisition and data processing are needed. Documents given in reference are provided with this form.

Please focus on each element for complex instruments.

**SYNOPSIS**

[1. géneral information 2](#_Toc167615770)

[1.1. owner 2](#_Toc167615771)

[1.2. instrument 2](#_Toc167615772)

[2. technical instrument information 3](#_Toc167615773)

[2.1. specifications 3](#_Toc167615774)

[2.2. structural comportement substantation 3](#_Toc167615775)

[2.3. electrical supply 3](#_Toc167615776)

[3. precaution of use 4](#_Toc167615777)

[3.1. flammable material 4](#_Toc167615778)

[3.2. GAZES OR LIQUIDS generated or used by instruments (like gas bottle) 4](#_Toc167615779)

[3.3. laser 4](#_Toc167615780)

[3.4. extrem temperatures (>50°C) 5](#_Toc167615781)

[3.5. radioactive source 5](#_Toc167615782)

[3.6. others 5](#_Toc167615783)

[4. instrument use 6](#_Toc167615784)

[5. procedures for flights 7](#_Toc167615785)

[6. DATA ACQUISITION and VISUALISATION 8](#_Toc167615786)

[6.1. DATA Acquisition 8](#_Toc167615787)

[6.2. inflight data display 8](#_Toc167615788)

[6.3. software of calibration and data processing 9](#_Toc167615789)

**Concerned aircraft: PIPER**  **ATR42**  **FALCON 20**

# general information

## owner

|  |  |
| --- | --- |
| Laboratory name : |  |
|  |  |
| Complete address : |  |
|  |  |
| Phone, fax: |  |
|  |  |
| Correspondent name and function : |  |
|  |  |
| Email : |  |
|  |  |
| Phone, fax : |  |

## instrument

|  |  |
| --- | --- |
| Instrument name : |  |
|  |  |
| Manufacturer (name, address, contact) : |  |
|  |  |
| Serial number : |  |
|  |  |
| Measurement type: |  |
|  |  |
| Principle of operation : |  |

|  |  |
| --- | --- |
| Modified instrument  (compared to commercial version)? |  |
|  |  |
| Instrument already certified on other aircraft (aircraft type, agreement) |  |
|  |  |
| Indicate if the material is assured : |  |

# technical instrument information

## specifications

|  |  |  |  |
| --- | --- | --- | --- |
| Part name | Dimensions | Position (in/out cabin) | Mass |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Instrument total : |  |  |  |

Please to not forget any part of the instrumentation (like computers, alimentation supply, etc.).

|  |  |
| --- | --- |
| Detail number and kind of airlet (in and out) needed for the instrument |  |

## structural comportement substantation

|  |  |
| --- | --- |
| Provide drawings and pictures of the entire instrument, structure and fasteners and references of the documents and attach it |  |
|  |  |
| Provide references of corresponding structural substantiation documents and attach it |  |

## electrical supply

|  |  |  |
| --- | --- | --- |
| Tensions | Average amperage (A) | Maximal amperage (A) |
| 28V CC |  |  |
| 28 V DC for de-icing |  |  |
| Saved 28V CC |  |  |
| 220V AC (50Hz) |  |  |
| Saved 220V AC (50Hz) |  |  |
| 115V AC 400Hz |  |  |
| 12 V DC |  |  |
| 110V AC (50Hz) |  |  |
| +15/-15 V |  |  |

|  |  |
| --- | --- |
| Provide reference of general wiring schematic (extern to the instrument) |  |
| Detail numbers and kinds of supply connectors of the instrument distribution unit to be supply by the aircraft |  |

# precaution of use

## flammable material

|  |  |
| --- | --- |
| Type material |  |
|  |  |
| Quantity |  |
|  |  |
| Position in aircraft |  |
|  |  |
| Created gazes |  |
|  |  |
| Combustion time |  |

## GAZES OR LIQUIDS generated or used by instruments (like gas cylinders)

|  |  |
| --- | --- |
| Gas/liquid type |  |
|  |  |
| Provide gas/liquid description document |  |
|  |  |
| Volume, concentration and any indication to determine the max possible concentration in cabin (volume & pressure cylinder, etc.) |  |
|  |  |
| Pressure (of use, maximal available) of the circuit |  |
|  |  |
| Provide the reference of the pressure and valve circuit schematic |  |

## laser

|  |  |
| --- | --- |
| Wave length |  |
|  |  |
| Class |  |
|  |  |
| Luminous power |  |
|  |  |
| Type |  |
|  |  |
| Accessibility of the beam and/or visible from the cabin or/and outside aircraft |  |
|  |  |
| Focalised beam |  |
|  |  |
| Eyes safe distance (reference of the substantiate document) |  |

## extrem temperatures (>50°C)

|  |  |
| --- | --- |
| Type (ex : oven) |  |
|  |  |
| In use temperature |  |
|  |  |
| Maximal in use temperature |  |
|  |  |
| Mean(s) of shutting down the system |  |
|  |  |
| Insulating protection |  |

## radioactive source

|  |  |
| --- | --- |
| Name |  |
|  |  |
| Source type & quantity (provide source document) |  |
|  |  |
| Authorisations (detention, displacement) |  |

## others

|  |  |
| --- | --- |
| Particular uses or warning not mentioned before |  |

# instrument use

|  |  |
| --- | --- |
| Provide the reference of the mounting/dismounting equipment note attached |  |
|  |  |
| Need of before/after flight intervention (if yes, type of intervention) |  |
|  |  |
| Periodicity and estimated duration of each intervention |  |
|  |  |
| Special need during installation (calibration, etc.) and operation frequency |  |
|  |  |
| Special storage conditions out of the aircraft (ex : T°, humidity, detention, authorisation) |  |

# procedures for flights

|  |  |
| --- | --- |
| Specific flight plans for instrument calibration  (provide reference of the attached document) |  |

|  |  |
| --- | --- |
| Handling to be carried out during flight (before, during and after powering) |  |

|  |  |
| --- | --- |
| Number of in flight experimenters needed (SAFIRE excepted) |  |

# DATA ACQUISITION and VISUALISATION

## DATA Acquisition

|  |  |  |
| --- | --- | --- |
| Autonomous data acquisition | YES | NO |

In case of data acquisition with an autonomous computer, work stations with screens are provided by SAFIRE.

|  |  |
| --- | --- |
| Number of work stations needed to control and see data. |  |

In case of data acquisition by SAFIRE computer:

Description of wanted data:

|  |  |  |
| --- | --- | --- |
| Parameter | Type of connection (RS232, ARINC, Ethernet, analogical, …) | Frequency |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Need of extern data coming from SAFIRE system

(Ex.: time, pressure, course…)

|  |  |
| --- | --- |
| Data list to provide at the instrument entry |  |
|  |  |
| Data format and interface |  |

## inflight data display

SAFIRE can display on control screens data coming from your instrument and from the base instrumentation.

|  |  |
| --- | --- |
| Diagram type of your instrument data needed to be displayed during the flight |  |
| Diagram type of base instrumentation data needed to be displayed during the flight |  |

|  |  |
| --- | --- |
| Calibration rules to use on wild data to obtain physical parameters (documentation) |  |

## software of calibration and data processing

If a calibration or data processing software must be used by SAFIRE before/after flight:

|  |  |
| --- | --- |
| Software  (provide documentation) |  |